

## Two New Species of *Nautarachna* from Western North America (Acarina: Nautarachnidae)<sup>1</sup>

By DAVID R. COOK, Wayne State University, Detroit

*Nautarachna*, the only genus in the family Nautarachnidae, is unusual among hydrachnids in that it contains members which are found in saline as well as fresh water. Unfortunately, the systematic position of the genus *Nautarachna* remains uncertain, for males have not yet been collected and described. The Nautarachnidae have been tentatively placed next to the Pionidae, but the closeness of this relationship can only be determined when the type of male sexual dimorphism, if any, is known. Of the three previously described species, only one has been collected in the adult stage, the other two having been described from nymphal specimens.

Two of the previously described species of *Nautarachna* have been reported from saline waters. *Nautarachna asperrima* Moniez, the type species, was taken in the littoral region of the Atlantic Ocean at Cayeux-sur-Mer, France. Viets (1936) states that it is not certain whether this species is actually a true marine form or should be considered an inhabitant of brackish water. Habeeb (1956a) collected a nymphal *Nautarachna* from a brook in the vicinity of salt springs near Sussex, New Brunswick. Habeeb at first assigned the mite to the European species *N. crassa* (Koenike), but later (Habeeb, 1956b) described it as a new species, *Nautarachna karl-vietsi*.

### *Nautarachna californica* new species (figs. 1, 4, 7, 8, 9)

Length between anterior end of first coxae and posterior end of genital field 576  $\mu$ ; first pair of coxae widely separated medially for over one-half their distance; first coxae with four heavy setae on each side at anterior end, these of approximately same length; second coxae with one or two heavy setae; median margin of third and fourth coxae well developed; with three relatively heavy setae on each side slightly postero-medial to

<sup>1</sup>Contribution no. 47 from the Department of Biology, Wayne State University.

insertion of fourth legs; fourth coxae sharply-angled posteriorly; acetabular plates narrow and extending laterally beyond insertion of fourth legs (fig. 1); width of genital field  $523 \mu$ ; genital acetabula 38-39 on each side; two to four setae on each side located in integument between medial portion of acetabular plates and pregenital sclerite, these setae not located on a common sclerite; integument papillate, with a pair of small dorsal plates (fig. 7), these approximately  $78 \mu$  in length,  $33 \mu$  in width; integument clear and not papillate in area immediately above lateral eyes.

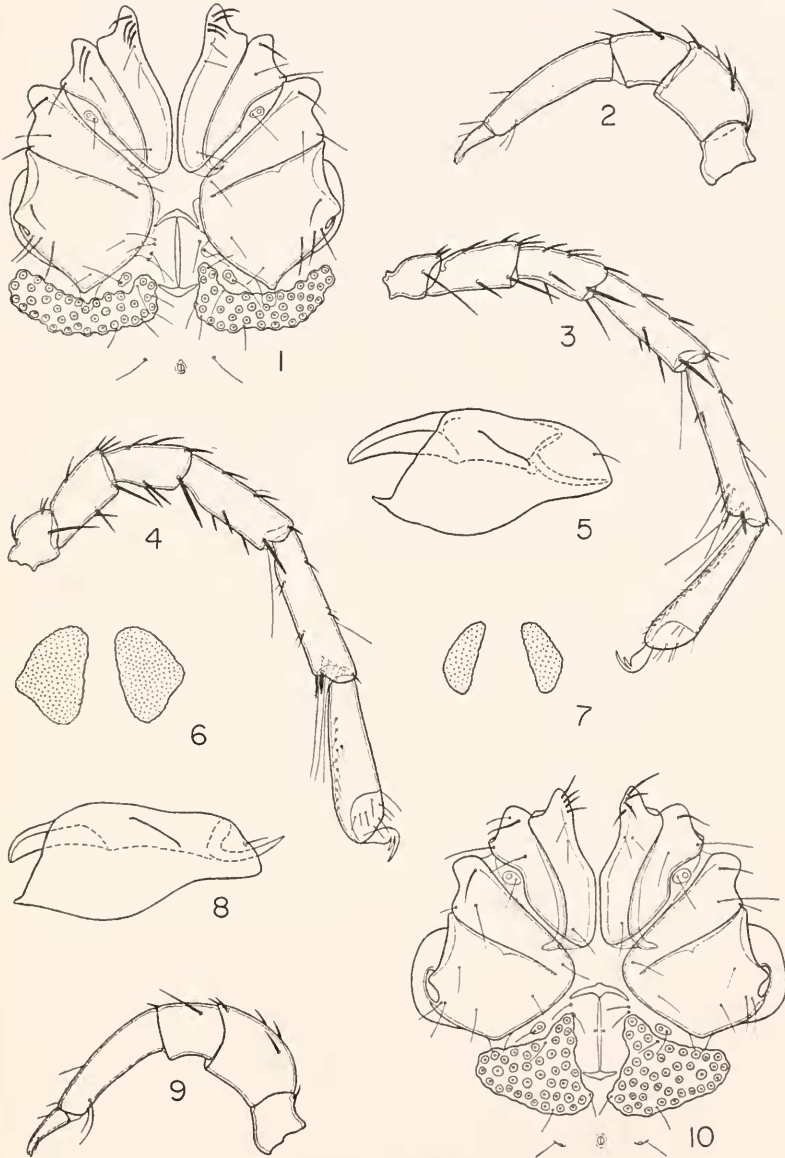
Capitulum (fig. 8)  $314 \mu$  in length, relatively long and narrow; chelicera  $349 \mu$  in length; dorsal lengths of palpal segments: P-I,  $38 \mu$ ; P-II,  $120 \mu$ ; P-III,  $72 \mu$ ; P-IV,  $142 \mu$ ; P-V,  $62 \mu$ ; fig. 9 illustrates chaetotaxy of outer side of palp; dorsal lengths of segments of first leg: I-Leg-1,  $74 \mu$ ; I-Leg-2,  $92 \mu$ ; I-Leg-3,  $106 \mu$ ; I-Leg-4,  $152 \mu$ ; I-Leg-5,  $196 \mu$ ; I-Leg-6,  $198 \mu$ ; I-Leg-4 with one, and I-Leg-5 with five short swimming hairs; fig. 4 illustrates chaetotaxy of first leg; other legs with longer and more numerous swimming hairs.

*Holotype*: Adult female, collected in a branch of the Navarro River between Boonville and Philo, Mendocino County, CALIFORNIA on August 9, 1954. The holotype of the present species, as well as that of the following species, will be deposited in the Chicago Natural History Museum.

*Nautarachna californica* differs from *N. crassa*, the only previously described species in which the adult is known, as follows: *N. californica* possesses approximately 40 genital acetabula on each side, *N. crassa* possesses about twice that number; *N. californica* has four pairs of heavy setae at the anterior end of the first coxae, *N. crassa*, as indicated in the figure of Viets (1936), possesses only two pairs.

#### *Nautarachna pioniformis* new species (figs. 2, 3, 5, 6, 10)

Length between anterior end of first coxae and posterior end of genital field  $602 \mu$ ; first coxae widely separated medially for approximately one-half their distance; first coxae with four heavy setae on each side at anterior end, most anterior of these



FIGS. 1, 4, 7-9. *Nautarachna californica* female. 1. Ventral view; 4. first leg; 7. dorsal plate; 8. capitulum; 9. palp.

FIGS. 2, 3, 5, 6, 10. *Nautarachna pioniformis* female. 2. Palp; 3. first leg; 5. capitulum; 6. dorsal plate; 10. ventral view.

setae longer than others; second coxae with one heavy seta on each side; median margin of third and fourth coxae more or less reduced to a median angle; fourth coxae slightly angled posteriorly; acetabular plates broad and extending only slightly beyond posterior corners of fourth coxae (fig. 10); width of genital field  $462\ \mu$ ; genital acetabula 39–40 on each side; one or two setae on each side located in integument between medial portion of acetabular plates and pregenital sclerite, these not located on small sclerites; integument papillate, with a pair of small, triangular back plates (fig. 6), these approximately  $113\ \mu$  in length,  $79\ \mu$  in width; integument clear and not papillate in area immediately above lateral eyes.

Capitulum (fig. 5)  $262\ \mu$  in length, slightly stockier than in preceding species; chelicera  $305\ \mu$  in length; dorsal lengths of palpal segments: P-I,  $36\ \mu$ ; P-II,  $112\ \mu$ ; P-III,  $76\ \mu$ , P-IV,  $156\ \mu$ ; P-V,  $52\ \mu$ ; fig. 2 shows chaetotaxy of outer side of palp; dorsal lengths of segments of first leg: I-Leg-1,  $70\ \mu$ ; I-Leg-2,  $92\ \mu$ ; I-Leg-3,  $108\ \mu$ ; I-Leg-4,  $152\ \mu$ ; I-Leg-5,  $196\ \mu$ ; I-Leg-6,  $198\ \mu$ ; I-Leg-4 with one, and I-Leg-5 with four short swimming hairs; Figure 3 shows chaetotaxy of first leg; other legs with longer and more numerous swimming hairs.

*Holotype*: Adult female, taken in a small tributary of the Snake River between Yellowstone and Grand Teton National Parks, Teton County, WYOMING on July 5, 1954.

Females of *Nautarachna pioniformis* may be easily distinguished from females of both *N. crassa* and *N. californica* by short, very broad acetabular plates (fig. 10). Actually, the genital field of the present species more closely resembles that of a *Piona* female than of the previously described females of *Nautarachna*.

#### REFERENCES

- HABEEB, H. 1956a. Notes on water-mites. I. Leaflets *Acadian Biol.* no. 11: 1.  
— 1956b. North American Hydrachnellae XXXIX–XLI. *Ibid.* no. 12: 4.  
VIETS, K. 1936. Die Tierwelt Deutschlands und der angrenzenden Meeresteile. Teil 31 und 32, VII Wassermilben oder Hydracarina, pp. 1–574. Jena.